STREAMLINING STORM WATER PERMIT IMPLEMENTATION THROUGH USE OF AN INFORMATION MANAGEMENT SYSTEM

30th Environmental & Energy Symposium

April 8, 2004

Presented by

John W. Hart

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NATIONAL DEFENSE INDUSTRIAL ASSOCIATION
STRENGTH THROUGH INDUSTRY & TECHNOLOGY

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Overview

- Background
- Diverse Sets of Information
- Paper or Electronic Management
- Off the Shelf Software vs. Custom Database
- Asist Software

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NPDES Phase II Permits

- Over 200 Military Installations Required to Obtain Phase II Permit
- U.S. Army, Fort Hood, Texas Directorate of Public Works Has Developed a Storm Water Management Program (SWMP)
- Permit Issued for Five Years
- Six Minimum Control Measures

NPDES Information Elements

- Infrastructure Assets
  - Outfalls
  - Curb Inlets
  - Retention Facilities
- Construction Site Inventory
- Public Interaction
- Inspection Activities
- BMP Implementation

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NPDES Information Elements
(Continued)

- **Annual Reports**
  - Summarize Field Inspection Program
  - Summarize Public Involvement and Education Activities
  - Document Actions
    - Corrective
    - Enforcement
    - Maintenance
  - Evaluate BMP Effectiveness

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Organization

- Involvement and Coordination with Multiple Departments and Groups
- MCM Tasks
- Compliance Milestones
- BMP Implementation
- Reports

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Management Tools

- **Paper File**

What does a stormwater program look like without a database?

When reports are due

- **Custom Database**
- **Off the Shelf Database**

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Ideal Management Database Keeps Track Of

- Essential Deadlines
- Dates
- Goals
- Inspections
- Inventories
- BMP Implementation

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Desirable Database Features

- Allow Inventory of Stormwater System
- Automatically Schedule Fieldwork
- Tools to Perform Inspections
- Document and Detail Illicit Discharges/Connections
- Create an Inventory of Constructions Sites

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Desirable Database Features
(Continued)

- Ability to Work With GIS Systems
- Store Information Related to Goal Implementation
- Report Writing Capability
- Collect Inspection Data in the Field Electronically
- Web Publishing
- Network Capability

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Asist Software

- Three Main Modules
  - Two Free Modules
- Multi-user Application
- Navigation Through Typical Windows Explorer Tree
- Entries Made Through Graphical User Interface (GUI)

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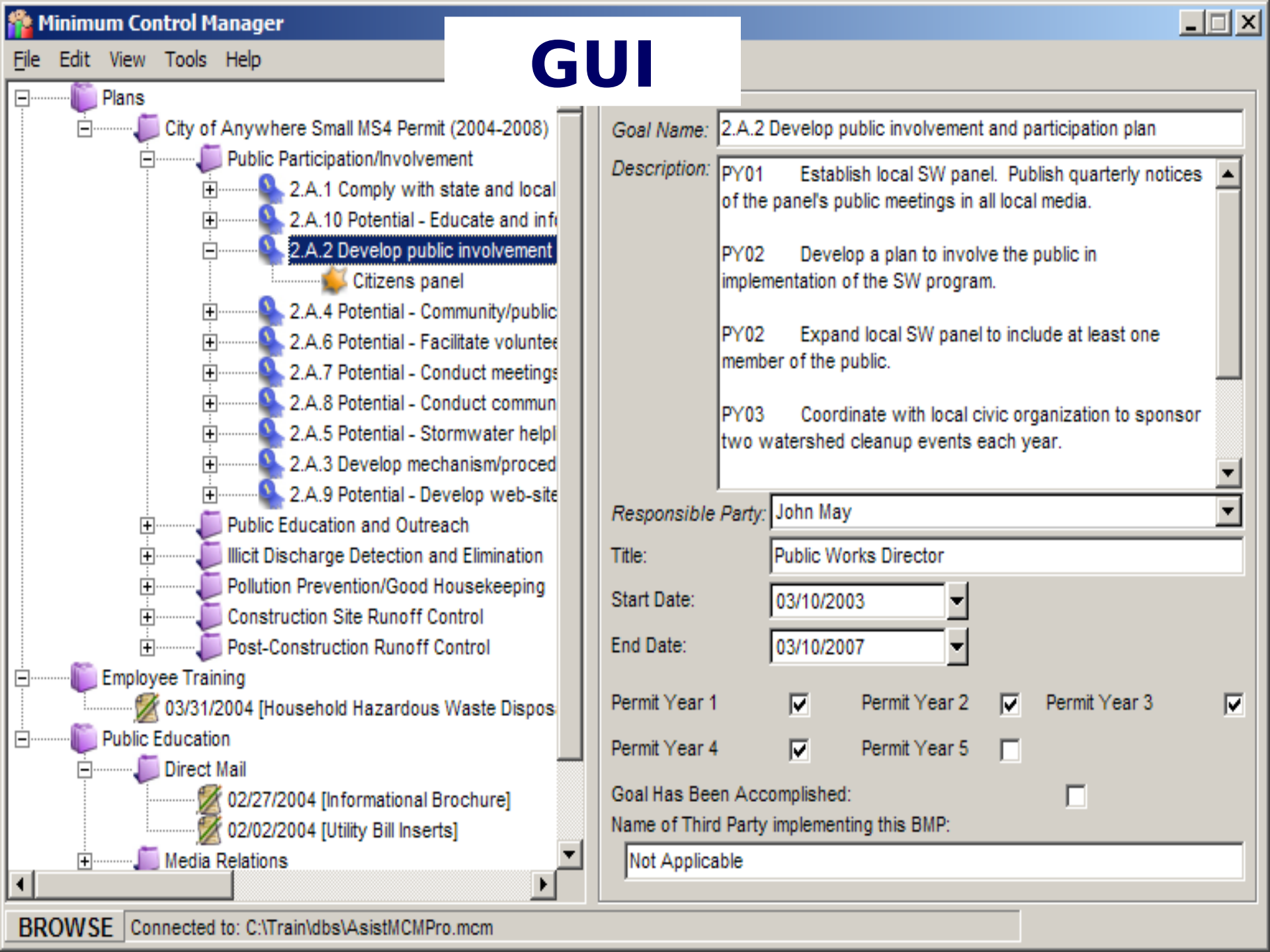
Minimum Control Manager
File Edit View Tools Help
GUI
Plans
City of Anywhere Small MS4 Permit (2004-2008)
Public Participation/Involvement
2.A.1 Comply with state and local
2.A.10 Potential - Educate and inf
2.A.2 Develop public involvement
Citizens panel
2.A.4 Potential - Community/public
2.A.6 Potential - Facilitate volunte
2.A.7 Potential - Conduct meetings
2.A.8 Potential - Conduct commun
2.A.5 Potential - Stormwater helpl
2.A.3 Develop mechanism/proced
2.A.9 Potential - Develop web-site
Public Education and Outreach
Illicit Discharge Detection and Elimination
Pollution Prevention/Good Housekeeping
Construction Site Runoff Control
Post-Construction Runoff Control
Employee Training
03/31/2004 [Household Hazardous Waste Dispos
Public Education
Direct Mail
02/27/2004 [Informational Brochure]
02/02/2004 [Utility Bill Inserts]
Media Relations
Goal Name: 2.A.2 Develop public involvement and participation plan
Description: PY01 Establish local SW panel. Publish quarterly notices of the panel's public meetings in all local media.
PY02 Develop a plan to involve the public in implementation of the SW program.
PY02 Expand local SW panel to include at least one member of the public.
PY03 Coordinate with local civic organization to sponsor two watershed cleanup events each year.
Responsible Party: John May
Title: Public Works Director
Start Date: 03/10/2003
End Date: 03/10/2007
Permit Year 1
Permit Year 2
Permit Year 3
Permit Year 4
Permit Year 5
Goal Has Been Accomplished:
Name of Third Party implementing this BMP:
Not Applicable
BROWSE
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Minimum Controls Manager

- Database Tracking of SWMP
- Keeps Track of Permit Goals and Conditions
- Customizable Fields
- Log Activities Related to BMP Implementation
- View Schedules

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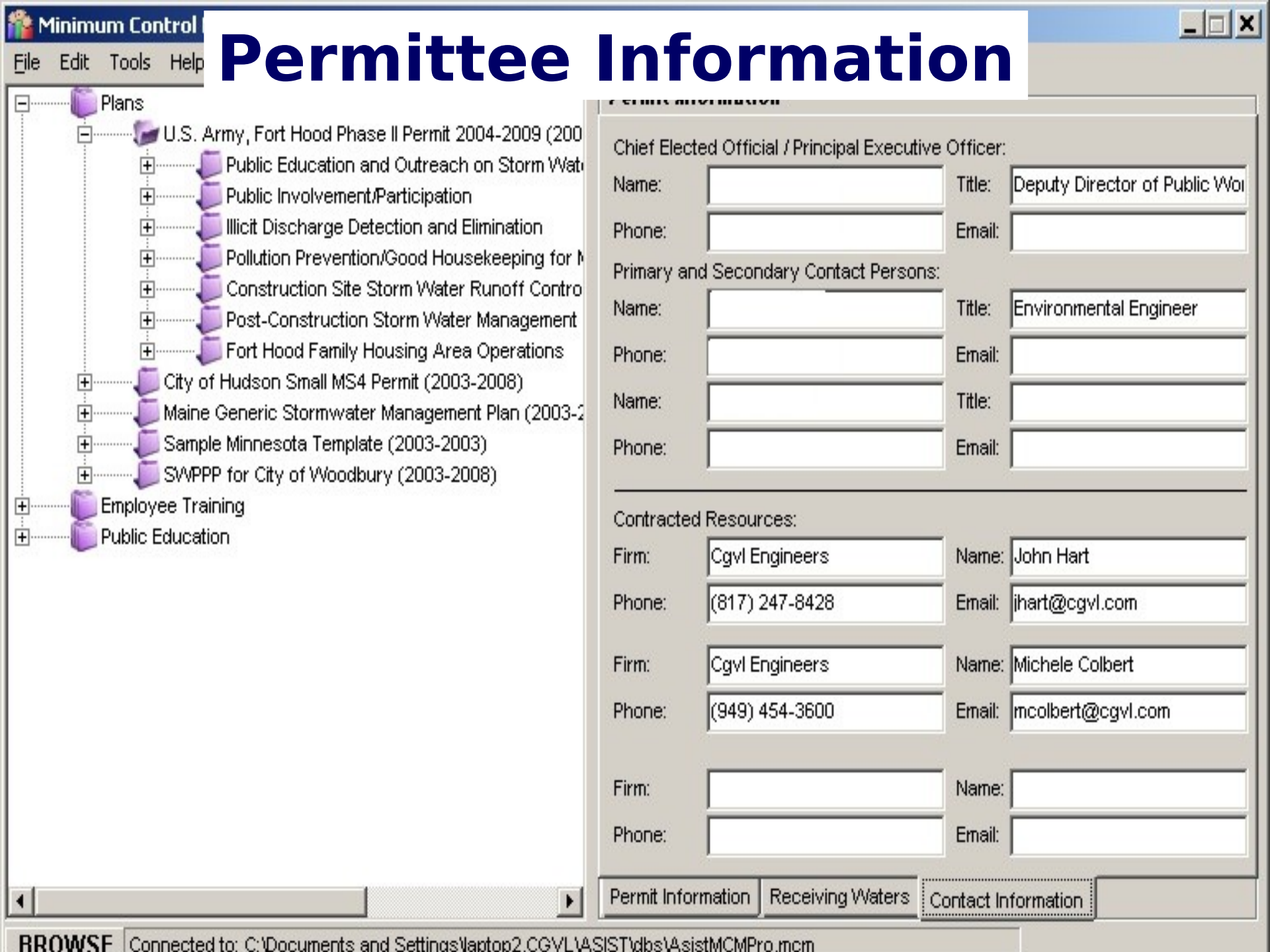
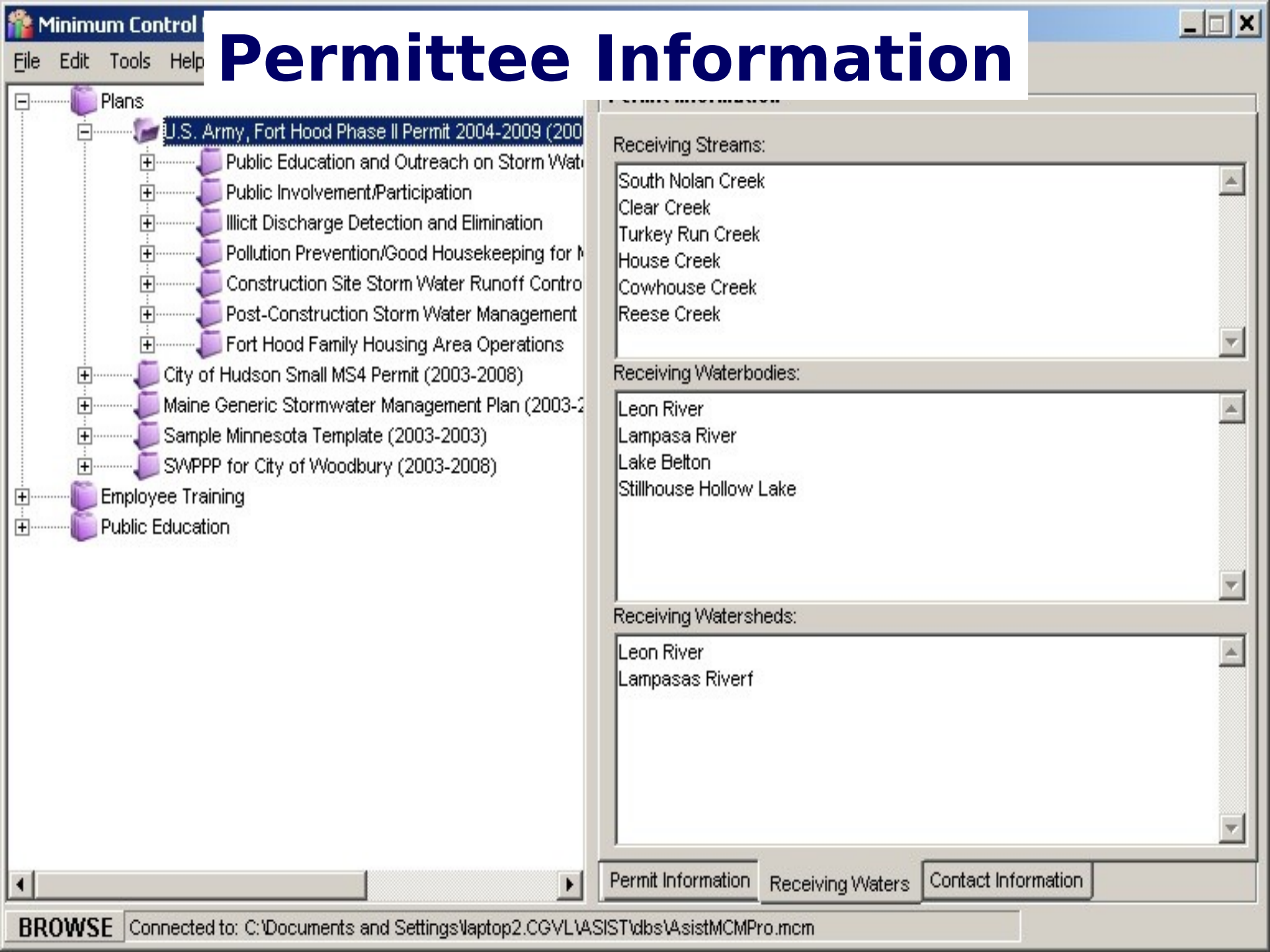
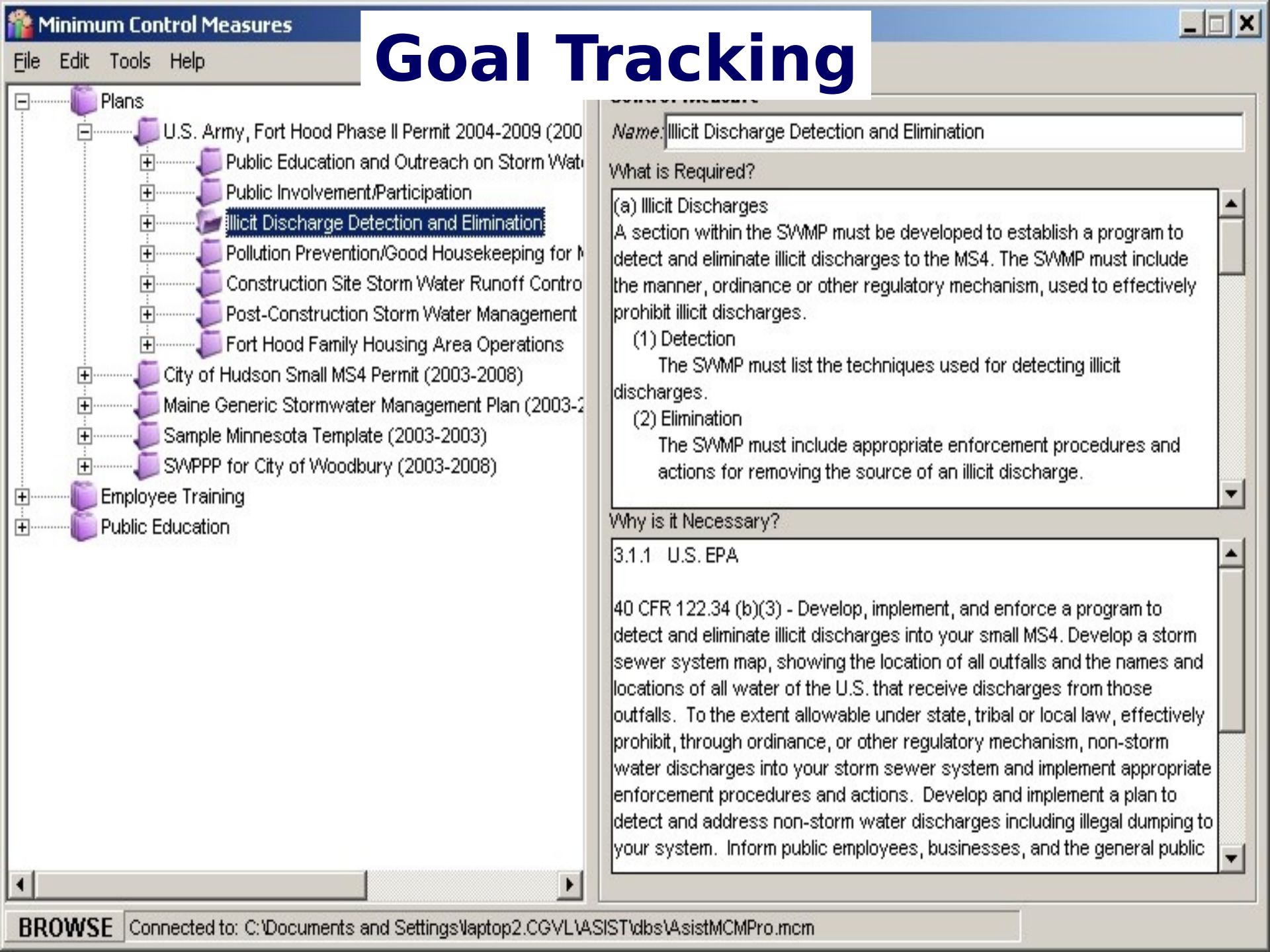
Permittee Information



Permittee Information



Goal Tracking


Minimum Control Measures
File Edit Tools Help
Plans
U.S. Army, Fort Hood Phase II Permit 2004-2009 (200
Public Education and Outreach on Storm Wat
Public Involvement/Participation
Illicit Discharge Detection and Elimination
Pollution Prevention/Good Housekeeping for M
Construction Site Storm Water Runoff Contro
Post-Construction Storm Water Management
Fort Hood Family Housing Area Operations
City of Hudson Small MS4 Permit (2003-2008)
Maine Generic Stormwater Management Plan (2003-2
Sample Minnesota Template (2003-2003)
SWPPP for City of Woodbury (2003-2008)
Employee Training
Public Education
Name: Illicit Discharge Detection and Elimination
What is Required?
(a) Illicit Discharges
A section within the SWMP must be developed to establish a program to detect and eliminate illicit discharges to the MS4. The SWMP must include the manner, ordinance or other regulatory mechanism, used to effectively prohibit illicit discharges.
(1) Detection
The SWMP must list the techniques used for detecting illicit discharges.
(2) Elimination
The SWMP must include appropriate enforcement procedures and actions for removing the source of an illicit discharge.
Why is it Necessary?
3.1.1 U.S. EPA
40 CFR 122.34 (b)(3) - Develop, implement, and enforce a program to detect and eliminate illicit discharges into your small MS4. Develop a storm sewer system map, showing the location of all outfalls and the names and locations of all water of the U.S. that receive discharges from those outfalls. To the extent allowable under state, tribal or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into your storm sewer system and implement appropriate enforcement procedures and actions. Develop and implement a plan to detect and address non-storm water discharges including illegal dumping to your system. Inform public employees, businesses, and the general public
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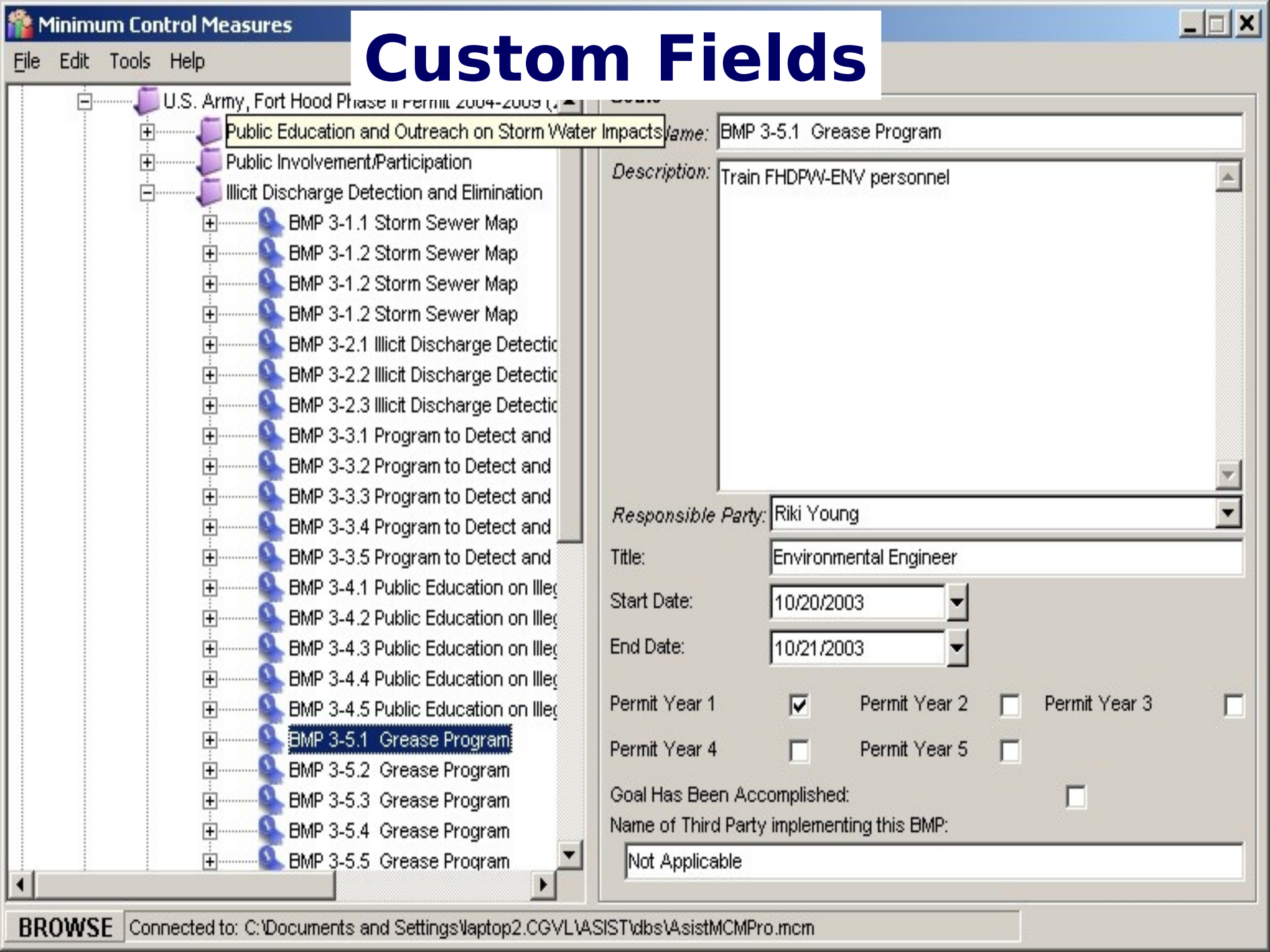
Minimum Control Measures
File Edit Tools Help
Custom Fields
U.S. Army, Fort Hood Phase II Permit 2004-2009
Public Education and Outreach on Storm Water Impacts
Public Involvement/Participation
Illicit Discharge Detection and Elimination
BMP 3-1.1 Storm Sewer Map
BMP 3-1.2 Storm Sewer Map
BMP 3-1.2 Storm Sewer Map
BMP 3-1.2 Storm Sewer Map
BMP 3-2.1 Illicit Discharge Detectic
BMP 3-2.2 Illicit Discharge Detectic
BMP 3-2.3 Illicit Discharge Detectic
BMP 3-3.1 Program to Detect and
BMP 3-3.2 Program to Detect and
BMP 3-3.3 Program to Detect and
BMP 3-3.4 Program to Detect and
BMP 3-3.5 Program to Detect and
BMP 3-4.1 Public Education on Ille
BMP 3-4.2 Public Education on Ille
BMP 3-4.3 Public Education on Ille
BMP 3-4.4 Public Education on Ille
BMP 3-4.5 Public Education on Ille
BMP 3-5.1 Grease Program
BMP 3-5.2 Grease Program
BMP 3-5.3 Grease Program
BMP 3-5.4 Grease Program
BMP 3-5.5 Grease Program
Name: BMP 3-5.1 Grease Program
Description: Train FHDPW-ENV personnel
Responsible Party: Riki Young
Title: Environmental Engineer
Start Date: 10/20/2003
End Date: 10/21/2003
Permit Year 1
Permit Year 2
Permit Year 3
Permit Year 4
Permit Year 5
Goal Has Been Accomplished:
Name of Third Party implementing this BMP:
Not Applicable
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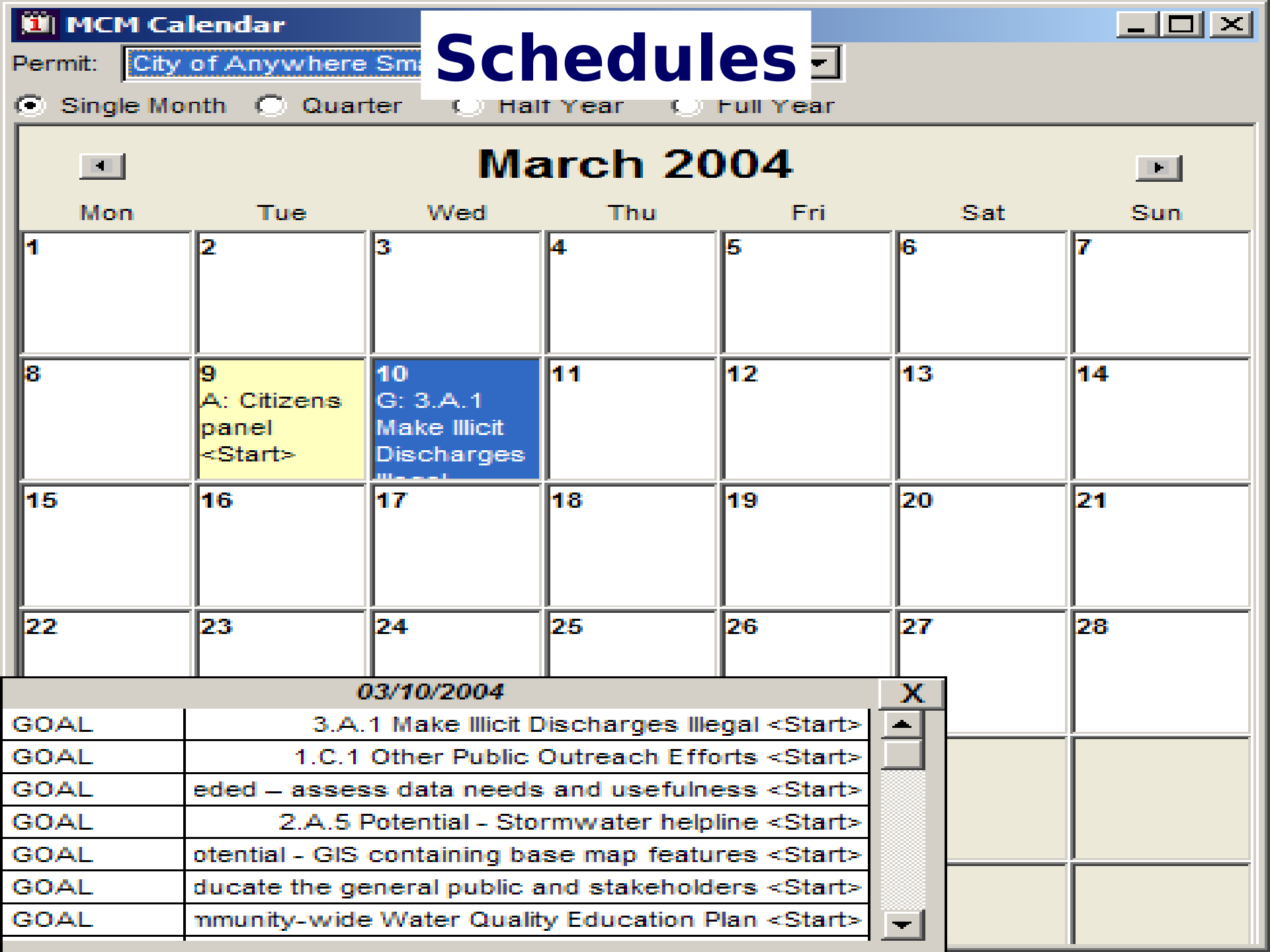
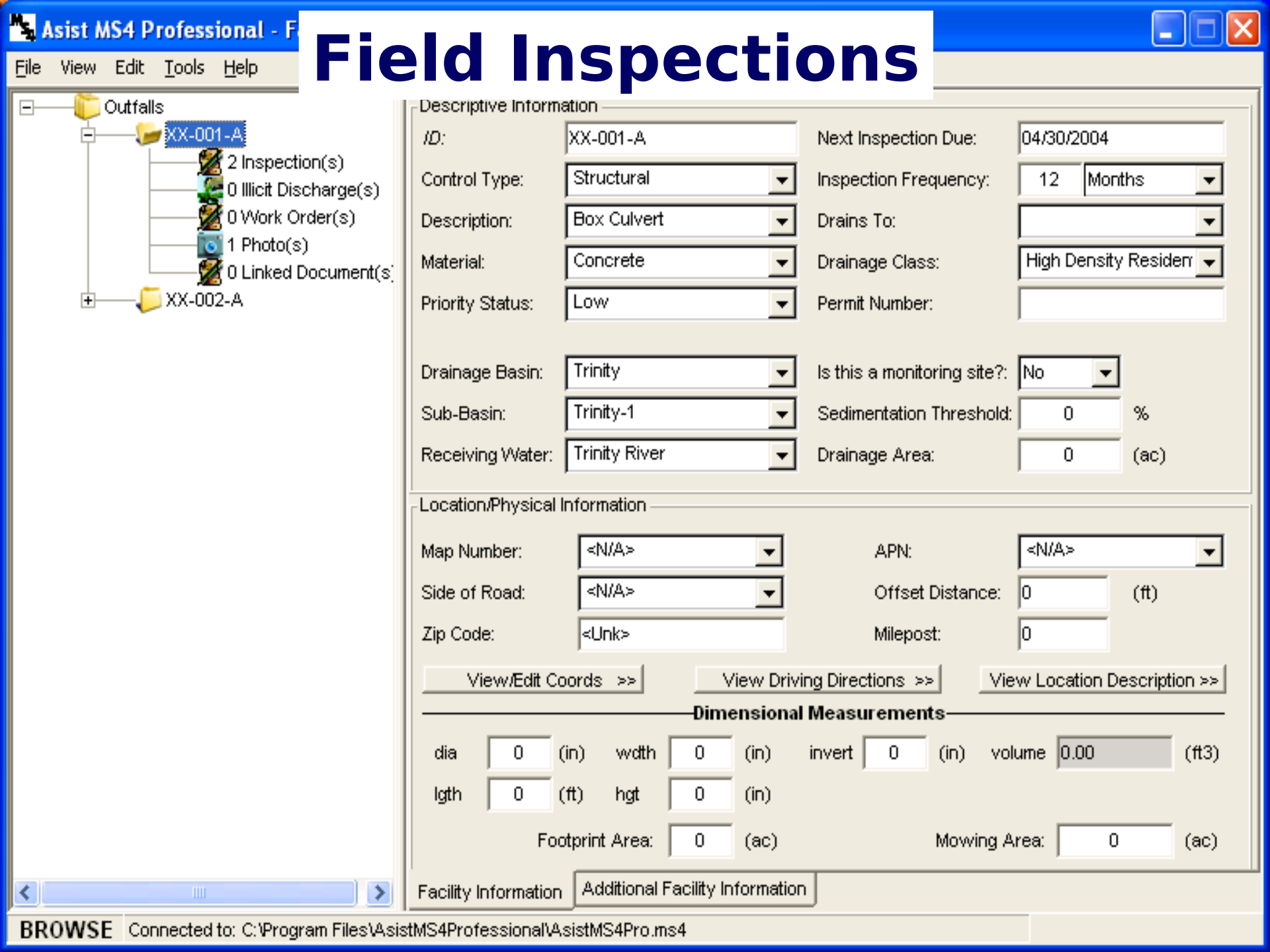

MCM Calendar
Schedules
Permit:
City of Anywhere Sm
Single Month
Quarter
Half Year
Full Year
March 2004
Mon
Tue
Wed
Thu
Fri
Sat
Sun
1
2
3
4
5
6
7
8
9
A: Citizens panel <Start>
10
G: 3.A.1 Make Illicit Discharges
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
03/10/2004
X
GOAL 3.A.1 Make Illicit Discharges Illegal <Start>
GOAL 1.C.1 Other Public Outreach Efforts <Start>
GOAL eded – assess data needs and usefulness <Start>
GOAL 2.A.5 Potential - Stormwater helpline <Start>
GOAL otential - GIS containing base map features <Start>
GOAL ducate the general public and stakeholders <Start>
GOAL mmunity-wide Water Quality Education Plan <Start>

Facility Workstation Professional

- Manages Program Requirements and Infrastructure Inventory
- Inventory Leveraged to Perform and Track Permit-Required Activities
  - Field inspections
  - Analytical monitoring
  - Special inspections
  - Work order requests
  - Log photos for individual records
  - Elimination of illicit discharges and connections
  - Enforcement activities


Asist MS4 Professional - F
Field Inspections
File View Edit Tools Help
Outfalls
XX-001-A
2 Inspection(s)
0 Illicit Discharge(s)
0 Work Order(s)
1 Photo(s)
0 Linked Document(s)
XX-002-A
Descriptive Information
ID: XX-001-A
Next Inspection Due: 04/30/2004
Control Type: Structural
Inspection Frequency: 12 Months
Description: Box Culvert
Drains To:
Material: Concrete
Drainage Class: High Density Residen
Priority Status: Low
Permit Number:
Drainage Basin: Trinity
Is this a monitoring site?: No
Sub-Basin: Trinity-1
Sedimentation Threshold: 0 %
Receiving Water: Trinity River
Drainage Area: 0 (ac)
Location/Physical Information
Map Number: <N/A>
APN: <N/A>
Side of Road: <N/A>
Offset Distance: 0 (ft)
Zip Code: <Unk>
Milepost: 0
View/Edit Coords >>
View Driving Directions >>
View Location Description >>
Dimensional Measurements
dia 0 (in) wdth 0 (in) invert 0 (in) volume 0.00 (ft3)
lgth 0 (ft) hgt 0 (in)
Footprint Area: 0 (ac)
Mowing Area: 0 (ac)
Facility Information
Additional Facility Information
BROWSE
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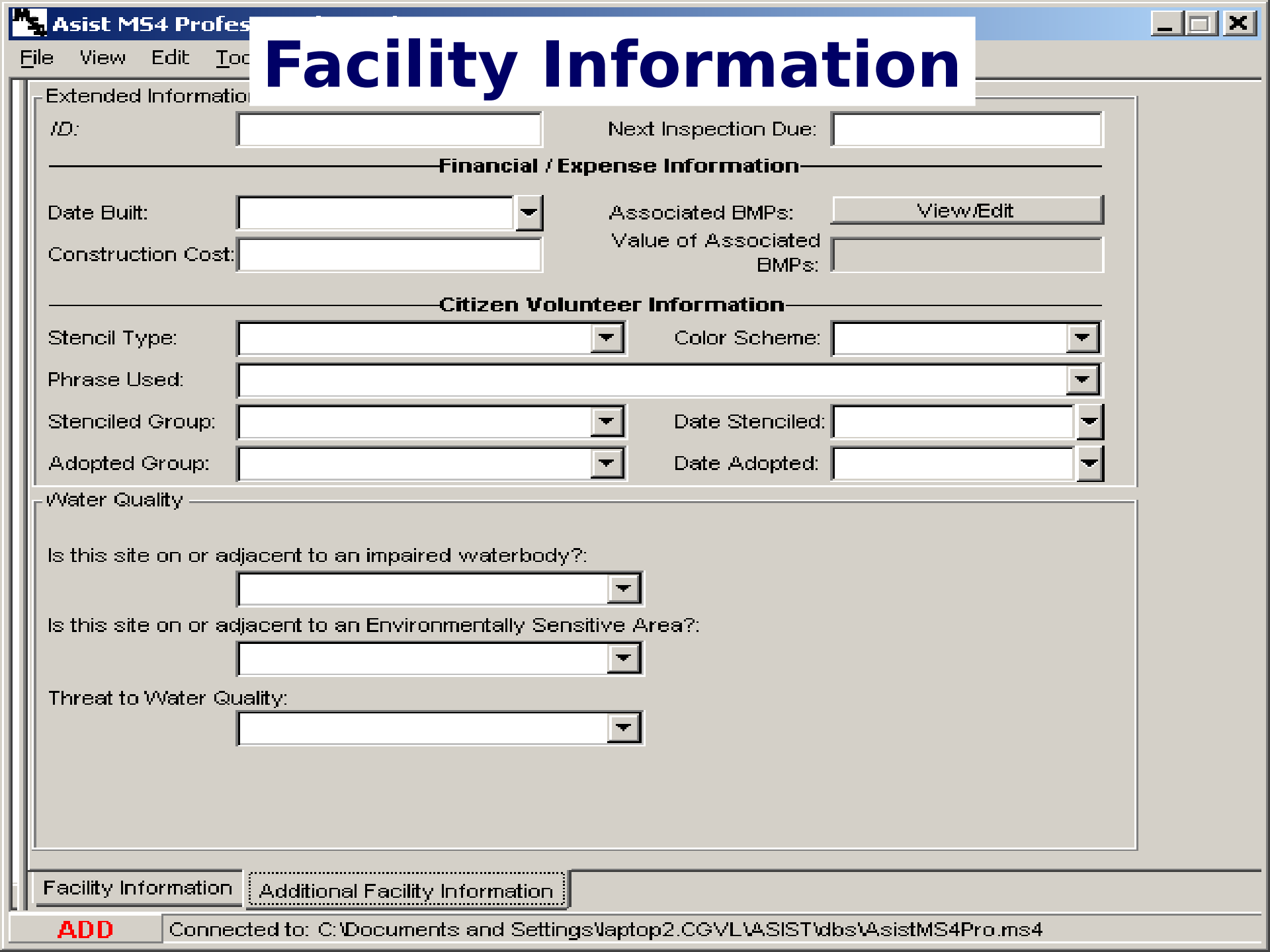
Asist MS4 Profes
File View Edit Too
Facility Information
Extended Information
ID:
Next Inspection Due:
Financial / Expense Information
Date Built:
Associated BMPs:
View/Edit
Construction Cost:
Value of Associated BMPs:
Citizen Volunteer Information
Stencil Type:
Color Scheme:
Phrase Used:
Stenciled Group:
Date Stenciled:
Adopted Group:
Date Adopted:
Water Quality
Is this site on or adjacent to an impaired waterbody?:
Is this site on or adjacent to an Environmentally Sensitive Area?:
Threat to Water Quality:
Facility Information
Additional Facility Information
ADD
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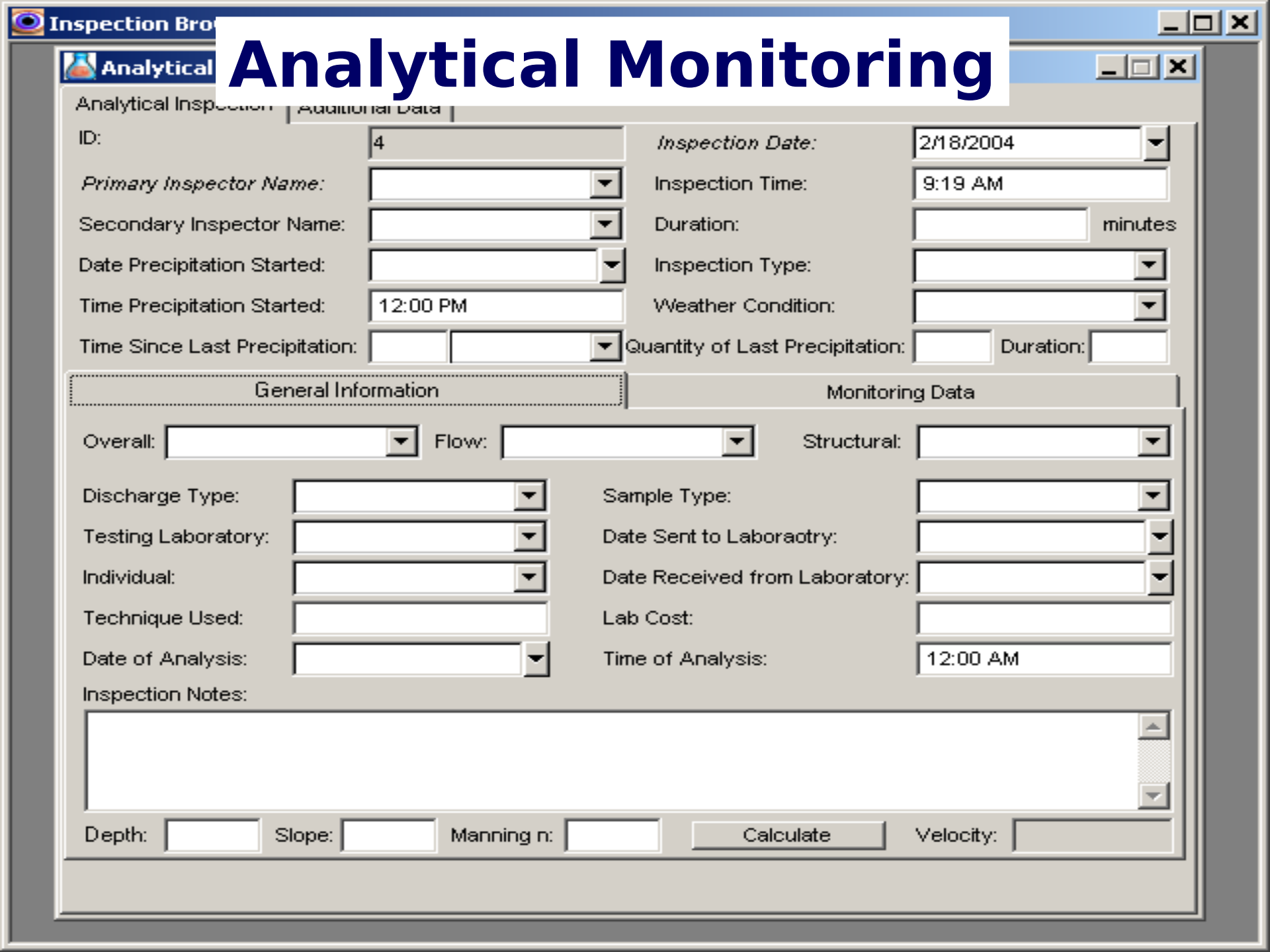
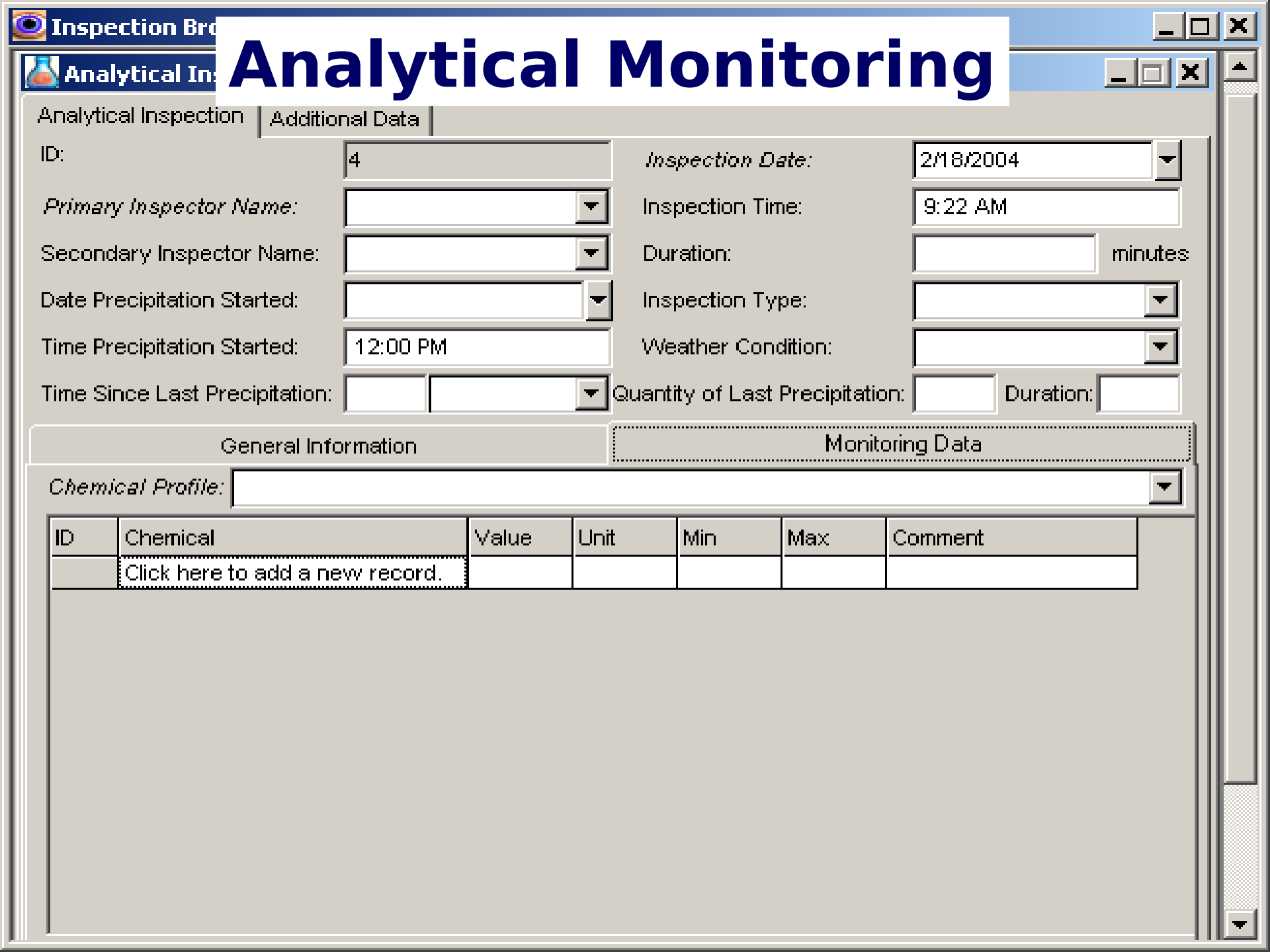
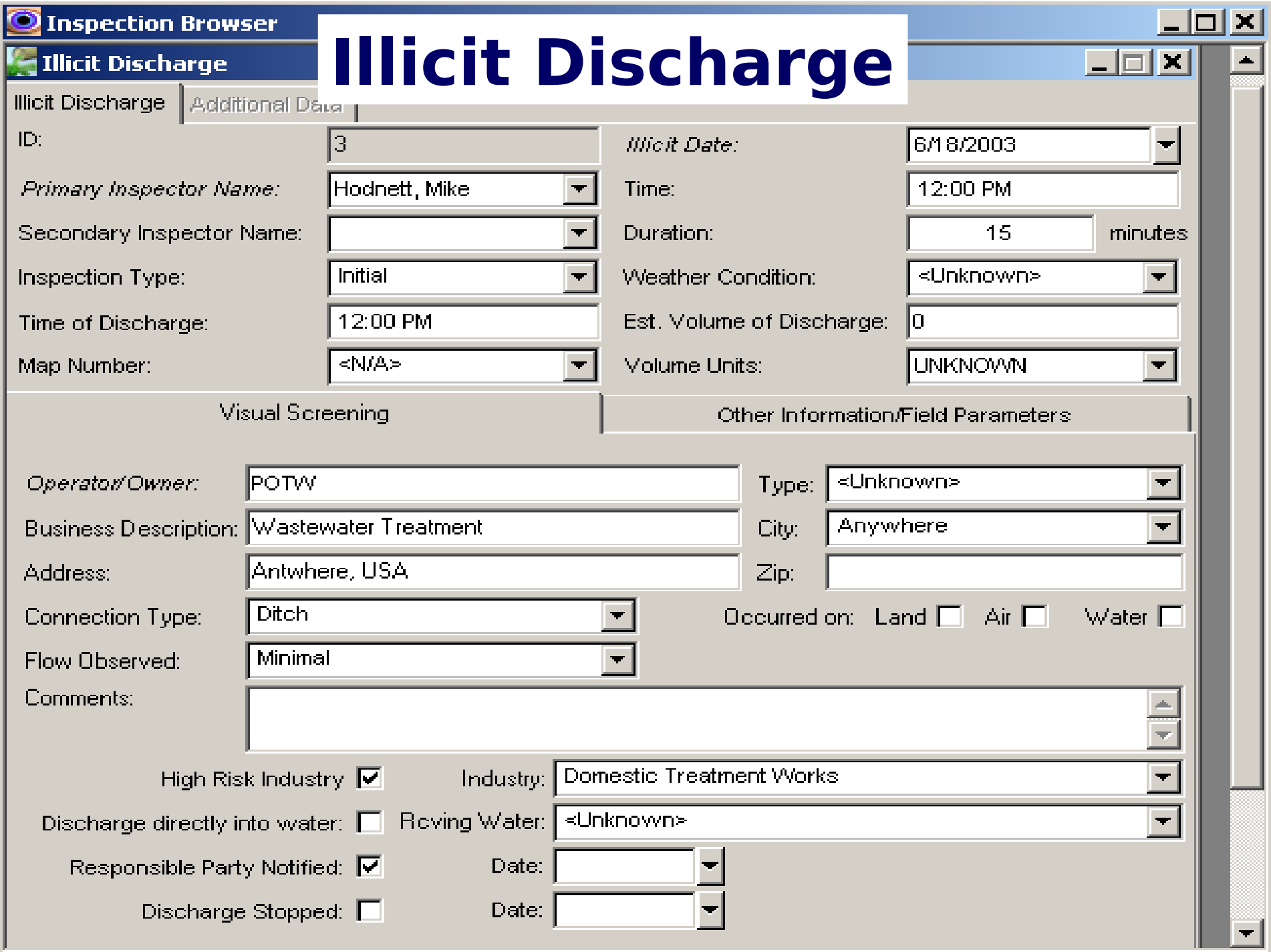
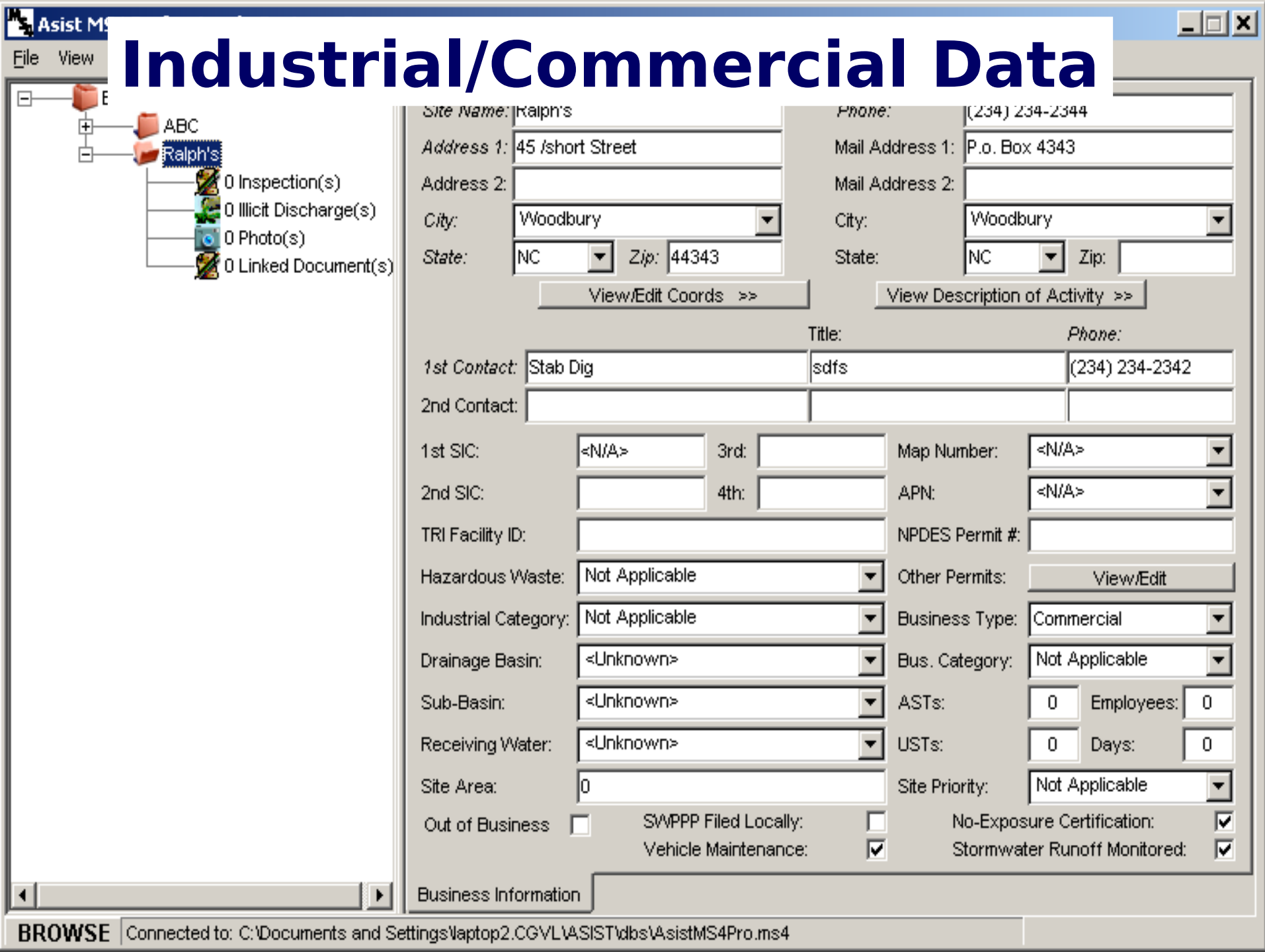

Inspection Bro
Analytical
Analytical Monitoring
Analytical Inspection
Additional Data
ID:
4
Inspection Date:
2/18/2004
Primary Inspector Name:
Inspection Time:
9:19 AM
Secondary Inspector Name:
Duration:
minutes
Date Precipitation Started:
Inspection Type:
Time Precipitation Started:
12:00 PM
Weather Condition:
Time Since Last Precipitation:
Quantity of Last Precipitation:
Duration:
General Information
Monitoring Data
Overall:
Flow:
Structural:
Discharge Type:
Sample Type:
Testing Laboratory:
Date Sent to Laboraotry:
Individual:
Date Received from Laboratory:
Technique Used:
Lab Cost:
Date of Analysis:
Time of Analysis:
12:00 AM
Inspection Notes:
Depth:
Slope:
Manning n:
Calculate
Velocity:


Inspection Bro
Analytical Ins
Analytical Monitoring
Analytical Inspection
Additional Data
ID:
4
Inspection Date:
2/18/2004
Primary Inspector Name:
Inspection Time:
9:22 AM
Secondary Inspector Name:
Duration:
minutes
Date Precipitation Started:
Inspection Type:
Time Precipitation Started:
12:00 PM
Weather Condition:
Time Since Last Precipitation:
Quantity of Last Precipitation:
Duration:
General Information
Monitoring Data
Chemical Profile:
ID
Chemical
Value
Unit
Min
Max
Comment
Click here to add a new record.


Inspection Browser
Illicit Discharge
Illicit Discharge
Illicit Discharge
Additional Data
ID:
3
Illicit Date:
6/18/2003
Primary Inspector Name:
Hodnett, Mike
Time:
12:00 PM
Secondary Inspector Name:
Duration:
15
minutes
Inspection Type:
Initial
Weather Condition:
<Unknown>
Time of Discharge:
12:00 PM
Est. Volume of Discharge:
0
Map Number:
<N/A>
Volume Units:
UNKNOWN
Visual Screening
Other Information/Field Parameters
Operator/Owner:
POTW
Type:
<Unknown>
Business Description:
Wastewater Treatment
City:
Anywhere
Address:
Antwhere, USA
Zip:
Connection Type:
Ditch
Occurred on:
Land
Air
Water
Flow Observed:
Minimal
Comments:
High Risk Industry
Industry:
Domestic Treatment Works
Discharge directly into water:
Rcving Water:
<Unknown>
Responsible Party Notified:
Date:
Discharge Stopped:
Date:

Industrial/Commercial Data



Construction Workstation

- Manages Construction Site and Post-Construction Runoff Programs
- Creates Comprehensive Inventory of Activities
- Document Inspection Activities Directly Into Software
- Track and Issue Enforcement/Follow-up Orders
- Generate Comprehensive Annual Report

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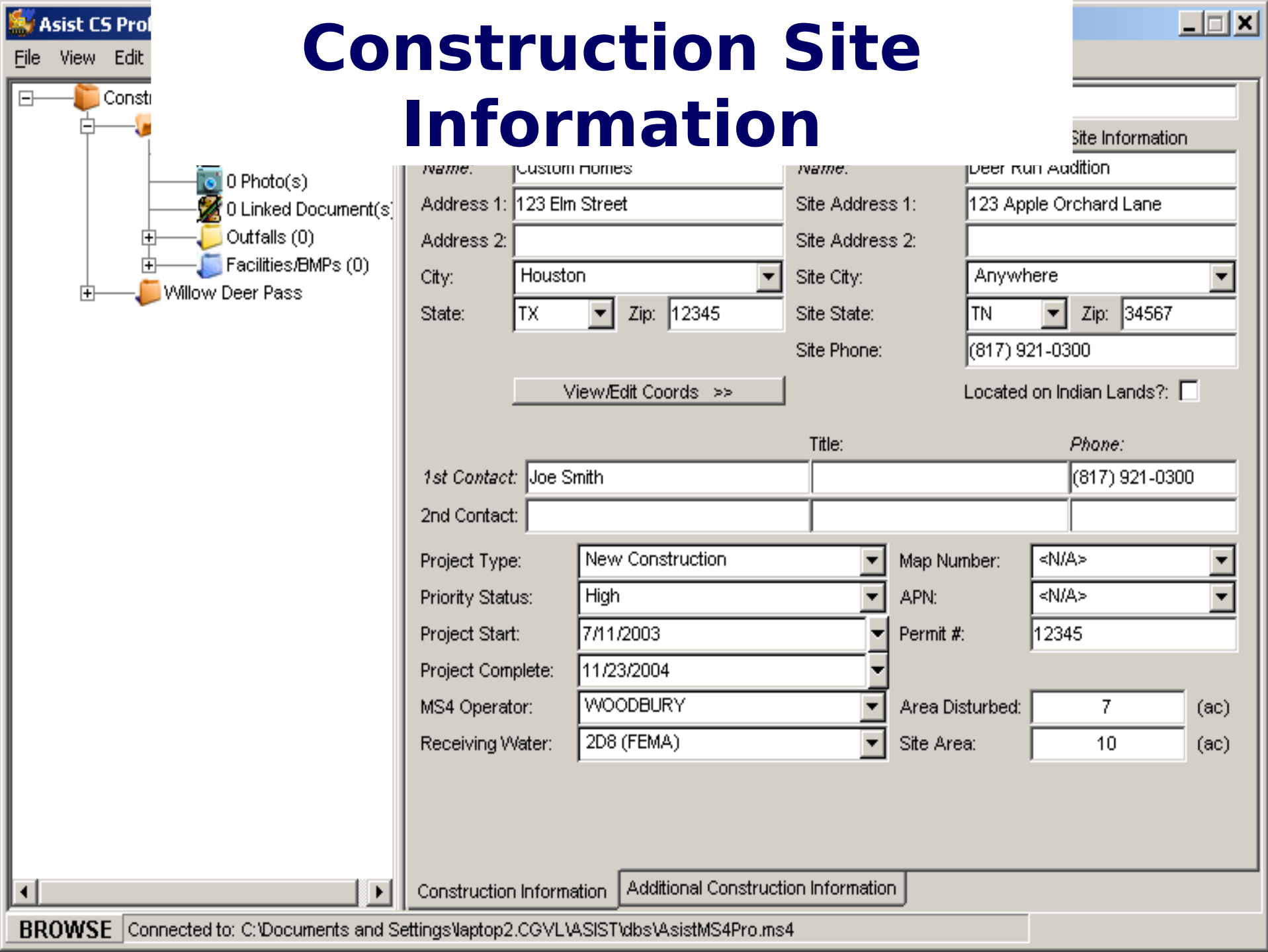
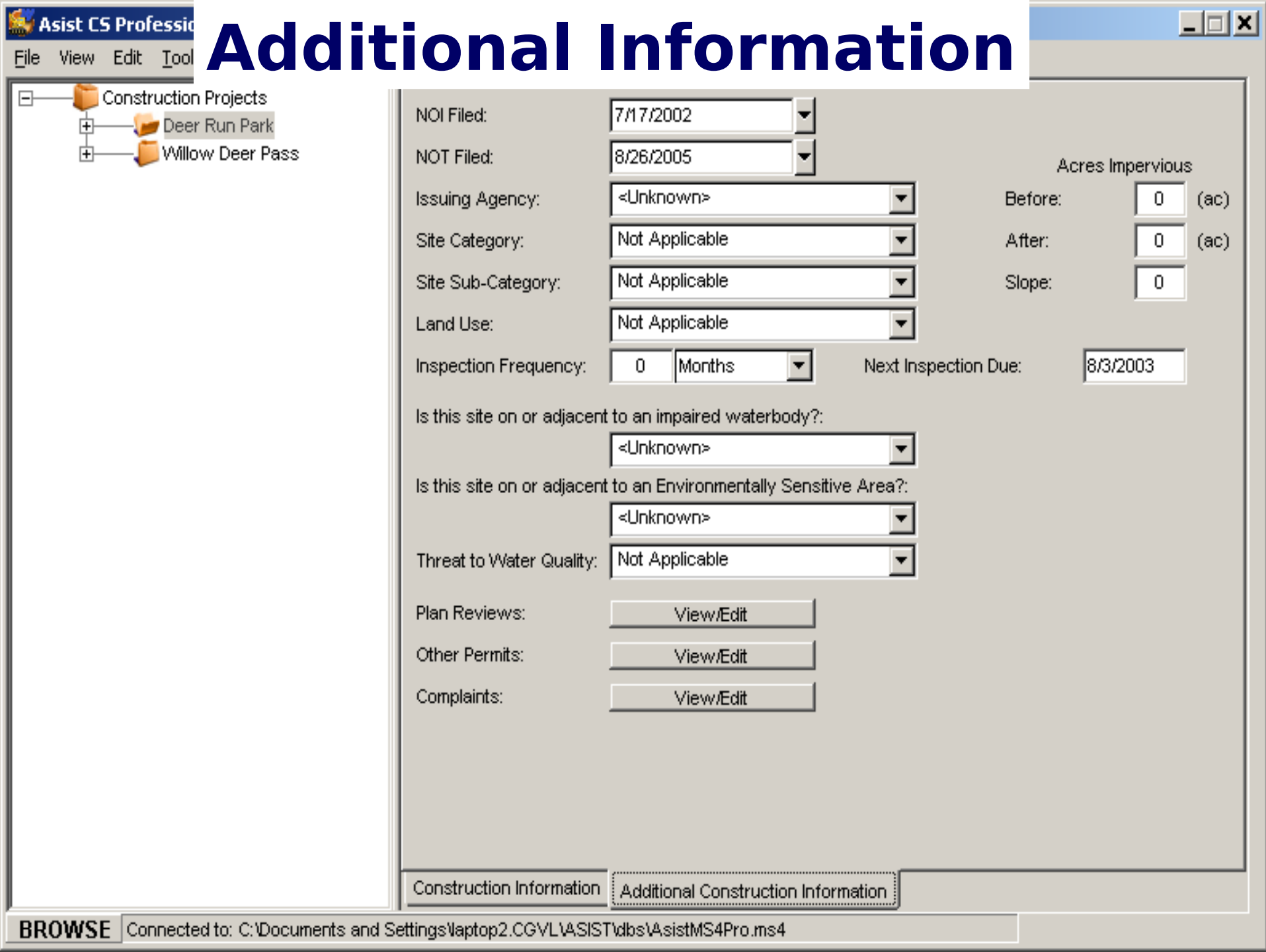
Construction Site Information



Additional Information



Field Inspector

- Module for Transfer of Inspection Data From Field
- Can Be Shared With Other Departments
- Does Not Allow Full Access to Database
- Reduces Collection of Unnecessary Data
- Manage Capabilities
- Provides Chain-of-Custody

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Agency Manager

- Combines Contents of Many Databases Into One
- Free Software Module
- Used to View and Print Annual Reports
- Does Not Allow Changes to Data
- Data Can be Viewed System-wide
- Allows Electronic Transfer of Annual Reports

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Reports

- Generated Easily
- Based on User Specific Time Increments
- Many Different Formats
  - HTML for Website Display
  - Encrypted File for Electronic Submission
  - Database Format
  - Rich Text Format (RTF)
  - PDF
  - Printed Directly From Software

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Reports

Report Preview

File View

Print... Back Forward Stop

100 %

U.S. Army, Fort Hood Phase II Permit 2004-2009
2004 - 2009

BMP 3-5.4 Grease Program

Submit draft regulatory mechanism for comments and revise. Develop inspection program

Start Date: 10/20/2003 **End Date:** 10/21/2003

Permit Years: Year 1: Year 2: Year 3: Year 4: **X** Year 5: **Accomplished?:** No

Name of Third Party implementing this BMP: Not Applicable

Actions performed for this goal:

BMP 3-5.5 Grease Program

Implement inspection program and regulatory mechanisms. Implementation complete

Start Date: 10/20/2003 **End Date:** 10/21/2003

Riki Young Environmental Engineer

Permit Years: Year 1: Year 2: Year 3: Year 4: Year 5: **X** **Accomplished?:** No

Name of Third Party implementing this BMP: Not Applicable

Actions performed for this goal:

BMP 3-6.1 Oil/Water Separator Program

Train EHDPW-ENV personnel

Benefits

- Ability to Quickly Deploy
- Greater Program Standardization
- Reduction of Field Data Collection Efforts
- GIS Compatibility
- Recognized by EPA and States
- Cost Savings

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STREAMLINING STORM WATER PERMIT IMPLEMENTATION THROUGH USE OF AN INFORMATION MANAGEMENT SYSTEM

QUESTIONS

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